

Time 3 hours

Paper
reference

31761H

Information Technology

UNIT 2: Creating Systems to Manage Information

Part A

You must have:

activity2.rtf, activity3.rtf, activity4.rtf

Instructions

- **Part A** and **Part B** contain the material for the completion of the set tasks under supervised conditions.
- There are 40 marks for **Part A** and 26 marks for **Part B**, giving a total mark for the set tasks of 66.
- **Part A** and **Part B** are specific to each series and this material must be issued only to learners who have been entered to take the tasks in the specified series.
- Learners **must only** have access to **Part A** during this examination session.
- This booklet should be kept securely until the start of the 3-hour supervised assessment period.
- **Part B** materials must not be accessed during completion of **Part A**.
- **Part A** and **Part B** should be submitted together for each learner.
- This booklet should not be returned to Pearson.
- Answer **all** activities.

Information

- The total mark for this paper is 40.

Turn over ►

Instructions to Invigilators

This paper must be read in conjunction with the unit information in the specification and the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document. See the Pearson website for details.

Refer carefully to the instructions in this task booklet and the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document to ensure that the assessment is supervised correctly.

The 3-hour **Part A** set task must be carried out under examination conditions.

Electronic templates for Activities 2, 3 and 4 are available on the website for centres to download for candidate use.

Learners must complete this task on a computer using the templates provided and appropriate software. All work must be saved as PDF documents for submission.

Invigilators may clarify the wording that appears in this task but cannot provide any guidance in completion of the task.

Invigilators should note that they are responsible for maintaining security and for reporting issues to Pearson.

Maintaining Security

- Learners must not bring anything into the examination environment or take anything out.
- Centres are responsible for putting in place appropriate checks to ensure that only permitted material is introduced into the examination environment.
- Internet access is **not** permitted.
- Learners' work must be regularly backed up. Learners should save their work to their folder using the naming instructions indicated in each activity.
- During any permitted break, and at the end of the examination, materials must be kept securely, and no items removed from the supervised environment.
- Learners can only access their work under supervision.
- User areas must only be accessible during the examination session and only by the individual learners.
- Any materials being used by learners must be collected in at the end of the examination.
- Following completion of **Part A** of the set task, all materials must be retained securely for submission to Pearson.
- **Part B** materials must not be accessed during the completion of **Part A**.

Outcomes for Submission

Each learner must create a folder to submit their work.

The folder should be named according to this naming convention:

[Centre #]_[Registration number #]_[surname]_[first letter of first name]_PartA

Example: Joshua Smith with registration number F180542 at centre 12345 would have a folder titled

12345_F180542_Smith_J_PartA

Each learner will need to submit 6 PDF documents **and** their final database within their folder.

The 6 PDF documents should use these file names:

- Activity 1:** activity1_[Registration number #]_[surname]_[first letter of first name]
- Activity 2:** activity2_[Registration number #]_[surname]_[first letter of first name]
- Activity 3:** activity3_[Registration number #]_[surname]_[first letter of first name]
- Activity 3d:** activity3d_[Registration number #]_[surname]_[first letter of first name]
- Activity 4:** activity4_[Registration number #]_[surname]_[first letter of first name]
- Activity 5:** activity5_[Registration number #]_[surname]_[first letter of first name]

Instructions for Learners

Read the set task information carefully.

Plan your time carefully to allow for the preparation and completion of all the activities.

Internet access is **not** allowed.

You will complete this set task under supervision and your work will be kept securely at all times.

You must work independently throughout the examination and must not share your work with other learners.

Your invigilator may clarify the wording that appears in this task but cannot provide any guidance in completion of the task.

Part B materials **must not** be accessed during the completion of **Part A**.

Outcomes for Submission

You must create a folder to submit your work.

The folder should be named according to this naming convention:

[Centre #]_[Registration number #]_[surname]_[first letter of first name]_PartA

Example: Joshua Smith with registration number F180542 at centre 12345 would have a folder titled

12345_F180542_Smith_J_PartA

You will need to submit 6 PDF documents **and** your final database within this folder.

The 6 PDF documents should use these file names:

Activity 1:	activity1_[Registration number #]_[surname]_[first letter of first name]
Activity 2:	activity2_[Registration number #]_[surname]_[first letter of first name]
Activity 3:	activity3_[Registration number #]_[surname]_[first letter of first name]
Activity 3d:	activity3d_[Registration number #]_[surname]_[first letter of first name]
Activity 4:	activity4_[Registration number #]_[surname]_[first letter of first name]
Activity 5:	activity5_[Registration number #]_[surname]_[first letter of first name]

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Part A Set Task Brief

You are advised to spend 10 minutes reading the Task Scenario and the activities you are to complete.

You may make notes and/or highlight information to use in the completion of the documents you need to produce for your task.

Task Scenario

You have been asked to create a database for Automatic Vending Services.

Automatic Vending Services is a company that supplies, installs and manages drinks vending machines for businesses.

The database will record information about the staff it employs.

There are several job positions in the company, for example a vending machine operator.

Each staff member has one job position at a time; they can have many different job positions during their employment.

Not all staff members work five days a week. The minimum number of days they can work is two.

Once a year each current staff member is given a performance grade. The company does not keep a record of past performance grades.

An extract of the data the company would like to record is shown in **Figure 1**.

Staff Ref	Surname	Grade Descriptor	Staff Days Per Week	Performance Grade ID	Staff Start Date	Staff Leaving Date	Position ID	Position Start Date	Position End Date	Telephone	Position
1	Kayode	Excellent	5	1	12/03/2018		3	13/03/2018		07700 900446	Manager
2	Lestrangle	Excellent	3	1	12/03/2018		2	13/03/2018		07700 900468	Vending Machine Operator
3	Peterson		5		12/03/2018	09/04/2019	1	13/03/2018	08/04/2019	07700 999999	Sales Person
4	Ahmad		5		12/03/2018		4	13/03/2018	16/04/2020	07700 900434	Office Assistant
4	Ahmad	Good	5	2	12/03/2018		5	17/04/2020		07700 900434	Office Manager
5	Frost	Excellent	5	1	12/03/2018		2	13/03/2018		07700 913333	Vending Machine Operator
6	Kibbel	Good	4	2	10/04/2019		1	11/04/2019		07700 900587	Sales Person
7	Guy	Excellent	5	1	18/08/2019		2	19/08/2019		07700 900444	Vending Machine Operator
8	Hartell	Average	2	3	16/04/2020		4	17/04/2020		07700 888888	Office Assistant

Figure 1

Part A Set Task

You must complete ALL activities within the set task.

Produce your documents using a computer.

Save your documents in your folder ready for submission using the formats and naming conventions indicated.

Activity 1: Database Relationships Screenprint (45 minutes)

Study the data extract provided in **Figure 1**.

Create an efficient database structure that:

- minimises data duplication
- accepts the data provided
- uses recognised naming conventions
- ensures data integrity.

Ensure you use **all** and **only** the fields shown in **Figure 1**.

Screen print your database relationships.

Save your database relationships screenprint as a PDF in your folder for submission as **activity1_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 45 minutes on this activity.

(Total for Activity 1 = 8 marks)

Activity 2: Table Structures and Validation (45 minutes)

Create efficient table structures based on Activity 1 and the data shown in **Figure 1**.

The table structures must use suitable validation to meet these requirements:

- a record for a staff member will not save if the surname is not present
- a record for a staff member will not save if the staff start date is not present
- a record for a staff member will not save if the telephone number is not in the correct format
- a record for a staff member will not save if the number of days they work is below the accepted range
- a record for a staff member will not save if the number of days they work is above the accepted range
- a record for a staff member will not save if the performance grade ID is invalid.

Input the data given in **Figure 1** into your relational database.

Evidence your table structures and validation as screenprints using the given **activity2.rtf** template.

Display your screenprints to show:

- the design view of each table showing the structure, including the fields and data types
- validation including one suitable example for each of these:
 - presence check
 - length check
 - value lookup **or** range check
 - table lookup
 - format check.

Save your evidence of the table structures as a PDF in your folder for submission as **activity2_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 45 minutes on this activity.

(Total for Activity 2 = 8 marks)

Activity 3: Queries and Report (40 minutes)

Queries

- (a) Create a query to display an alphabetically sorted list of positions that have at least two staff members currently in that position. It must show the name of the position and the number of staff members only.
- (b) Staff members currently employed can receive bonus payments:
 - if they have worked for the company for at least 3 years the bonus is £1,000
 - if they have worked for the company for less than 3 years the bonus is £200.

Create a query to display what the bonus will be for each current staff member with a performance grade of excellent.

Calculate:

- the number of years worked
- the bonus.

Display:

- the staff surname
- the staff start date
- the number of years worked
- the bonus.

Evidence your queries as screenprints using the given **activity3.rtf** template.

Your screenprints must show:

- the **DESIGN** view of the queries specified that you have created, including fields and criteria
- the **DATASHEET** view of the queries specified that you have created.

Report

- (c) Create a report that shows a list of positions.

For each position, calculate the total number of current staff who hold or have held that position.

Display:

- a suitable report title
- the name of the position
- the surname of each staff member
- the position start date
- the position end date
- the total number of staff.

The report must fit on one page.

Evidence your report as screenprints using the given **activity3.rtf** template.

Your screenprints must show:

- the **DESIGN** view of the report you have created, including grouping and calculations
- the **DESIGN** view of any queries you have created and used with the report, including fields and criteria
- the **DATASHEET** view of any queries you have created and used with the report.

Save your query and report evidence as a PDF in your folder for submission as **activity3_[Registration number #]_[surname]_[first letter of first name]**

- (d) Save your database report (not a screenprint) as a PDF in your folder for submission as **activity3d_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 40 minutes on this activity.

(Total for Activity 3 = 12 marks)

Activity 4: Structure Testing (20 minutes)

Test the structure and the validation of your relational database using suitable test data (normal, erroneous and extreme as appropriate).

You must provide evidence of table level testing that proves:

1. a record for a staff member will not save if the surname is not present
2. a record for a staff member will not save if the staff start date is not present
3. a record for a staff member will not save if the telephone number is not in the correct format
4. a record for a staff member will not save if the number of days they work is below the accepted range
5. a record for a staff member will not save if the number of days they work is above the accepted range
6. a record for a staff member will not save if the performance grade is invalid.

Complete the test log to show how you have tested the structure and validation of your database using the given **activity4.rtf** template.

Save your test log as a PDF in your folder for submission as

activity4_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 20 minutes on this activity.

(Total for Activity 4 = 6 marks)

Activity 5: Structure Evaluation (20 minutes)

Evaluate your database structure and validation.

You should consider:

- how well your database structure has minimised data duplication
- how well your database structure meets these requirements:
 - there are several job positions in the company, for example a vending machine operator
 - each staff member has one job position at a time; they can have many different job positions during their employment
 - not all staff members work five days a week. The minimum number of days they can work is two
 - once a year each current staff member is given a performance grade. The company does not keep a record of past performance grades.

Save your evaluation as a PDF in your folder for submission as

activity5_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 20 minutes on this activity.

(Total for Activity 5 = 6 marks)

TOTAL FOR PART A = 40 MARKS